ABSTRACT

This system for generating message transformation and validation software uses interface definition documents as inputs. An interface definition consists of an internally consistent set of message definitions, data dictionary entries, transformation rules, and validation rules. A user-friendly graphical user interface provides the requirements engineer or other user with the ability to specify these documents. This graphical user interface is a structured table and rules editor that allows the requirements engineer to enter and validate interface definitions to ensure that the definitions meet certain predetermined requirements. The generation system takes the interface definition documents as input and generates various software artifacts to transform and validate messages. W3C XML schemas are generated from an interface definition for assistance with code development, for use as standards-compliant interface definition that can be reused and composed with other schemas, and for validating messages. Extensible Stylesheet Language Transform files are generated from an interface definition to transform and validate messages. These generated software artifacts for message transformation and validation may then be used to implement message-processing systems. One example where this software was deployed is a wireless or local number portability service bureau that permits portability requests to pass from one telecommunications entity to another. The graphical user interface also enables the user to compare interface definitions, generate schema artifacts, generate transformation and validation artifacts, generate test cases, generate message indices, and generate documentation for distribution and review (formats include Microsoft Word, rich-text format, and HTML). Preexisting requirements documents may be converted for use in the present system by parsing and translating the preexisting documents into the interface definition documents. After this conversion process, information that could not be parsed and translated is referred to the requirements engineer or other user, who reenters the information using the structured table and rules editor.